

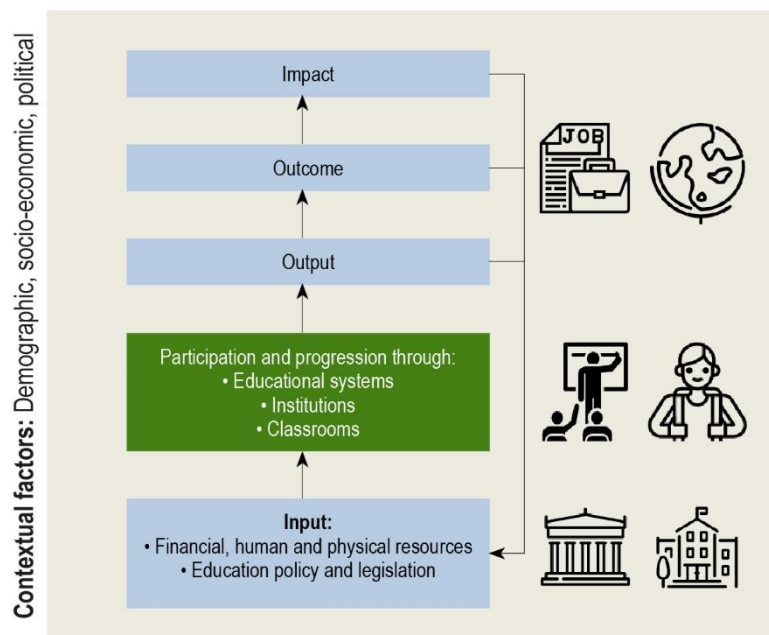
Reader's guide

The organising framework

Education at a Glance 2023: OECD Indicators offers a rich, comparable and up-to-date array of indicators that reflect a consensus among professionals on how to measure the current state of education internationally. The indicators provide information on the human and financial resources invested in education, how education and learning systems operate and evolve, and the returns to investments in education. They are organised thematically, each accompanied by information on the policy context and interpretation of the data.

The indicators are organised within a framework that distinguishes between the actors in education systems, groups them according to the types of issues they address and examines contextual factors that influence policy (Figure A). In addition to these dimensions, the time perspective makes it possible to visualise dynamic aspects of the development of education systems.

Figure A. Organising framework of indicators in *Education at a Glance*



Actors in education systems

The OECD Indicators of Education Systems (INES) programme seeks to gauge the performance of national education systems as a whole, rather than to compare individual institutional or other subnational entities. However, there is increasing recognition that many important features of the development, functioning and impact of education systems can only be assessed through an understanding of learning outcomes and their relationships to inputs and processes at the level of individuals and institutions.

To account for this, the first dimension of the organising framework distinguishes the three levels of actors in education systems:

- Education systems as a whole.
- Providers of educational services (institutions, schools), as well as the instructional setting within those institutions (classrooms, teachers).
- Individual participants in education and learning, the students. These can be either children or young adults undergoing initial schooling and training, or adults pursuing lifelong learning programmes.

Indicator groups

The second dimension of the organising framework further groups the indicators into three categories:

- *Indicators on the output, outcomes and impact of education systems:* Output indicators analyse the characteristics of those exiting the system, such as their educational attainment. Outcome indicators examine the direct effects of the output of education systems, such as the employment and earning benefits of pursuing higher education. Impact indicators analyse the long-term indirect effects of the outcomes, such as the knowledge and skills acquired, contributions to economic growth and societal well-being, and social cohesion and equity.
- *Indicators on the participation and progression within education entities:* These indicators assess the likelihood of students accessing, enrolling in and completing different levels of education, as well as the various pathways followed between types of programmes and across education levels.
- *Indicators on the input into education systems or the learning environment:* These indicators provide information on the policy levers that shape the participation, progression, outputs and outcomes at each level. Such policy levers relate to the resources invested in education, including financial, human (such as teachers and other school staff) or physical resources (such as buildings and infrastructure). They also relate to policy choices regarding the instructional setting of classrooms, pedagogical content and delivery of the curriculum. Finally, they analyse the organisation of schools and education systems, including governance, autonomy and specific policies to regulate the participation of students in certain programmes.

Contextual factors that influence policy

Policy levers typically have antecedents: external factors that define or constrain policy but are not directly connected to the policy topic at hand. Demographic, socio-economic and political factors are all important national characteristics to take into account when interpreting indicators. The characteristics of the students themselves, such as their gender, age, socio-economic status or cultural background, are also important contextual factors that influence the outcomes of education policy.

The structure and content of *Education at a Glance*

The indicators published in *Education at a Glance 2023* have been developed within this framework. The chapters are structured through the lens of the education system as a whole, although the indicators themselves are disaggregated and analysed across different levels of education and education settings, and may therefore cover more than one element of the framework.

Chapter A, *The output of educational institutions and the impact of learning*, contains indicators on the output, outcomes and impact of education in the form of the overall attainment of the population, as well as the learning, economic and social outcomes (Figure A). Through this analysis, the indicators in this chapter provide context, for example, to shape policies on lifelong learning. They also provide insights into the policy levers needed to address areas where outcomes and impact may not be aligned with national strategic objectives.

Chapter B, *Access to education, participation and progression*, considers the full education system from early childhood to tertiary education and provides indicators on the enrolment, progression and completion of students at each level and programme (Figure A). These indicators can be considered a mixture of output and outcome, to the extent that the output of each education level serves as input to the next and that progression is the result of policies and practices at classroom, institution and system levels. But they can also provide context to identify areas where policy intervention is necessary to address issues of inequity, for example, or to encourage international mobility.

Chapters C and D relate to the inputs into educational systems (Figure A):

- **Chapter C**, *Financial resources invested in education*, provides indicators on expenditure in education and educational institutions, how that expenditure is shared between public and private sources, the tuition fees charged by institutions, and the financial mechanisms to support students. These indicators are mainly policy levers, but they also help to explain specific learning outcomes. For example, expenditure on educational institutions per student is a key policy measure that most directly affects individual learners, but it also acts as a constraint on the learning environment in schools and learning conditions in the classroom.
- **Chapter D**, *Teachers, the learning environment and organisation of schools*, provides indicators on instruction time, teachers' and school heads' working time, and teachers' and school heads' salaries. These indicators not only represent policy levers that can be manipulated, but also provide contexts for the quality of instruction and for the outcomes of individual learners. This chapter also presents data on the profile of teachers.

In addition to the regular indicators and core statistics published, *Education at a Glance* also contains analytical work in textboxes. This work usually provides research elements that contribute to the understanding of the indicator, or additional analysis of a smaller number of countries that complement the findings presented.

Sustainable Development Goal 4

In September 2015, world leaders gathered to set ambitious goals for the future of the global community. Goal 4 of the Sustainable Development Goals (SDGs) seeks to ensure “inclusive and equitable quality education and promote lifelong learning opportunities for all”. Each target of the SDG 4 framework has at least one global indicator and a number of related thematic indicators designed to complement the analysis and the measurement of the target.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) oversees the education SDG agenda in the context of the United Nations-led SDG framework. As the custodian agency for most of the SDG 4 indicators, the UNESCO Institute of Statistics (UIS) is co-ordinating global efforts to develop the indicator framework to monitor progress towards SDG 4 targets. In addition to collecting data, the UIS works with partners to develop new indicators, statistical approaches and monitoring tools to better assess progress across the education-related SDG targets.

In this context, the OECD's education programmes have a key role to play in the achievement of – and measuring progress towards – SDG 4 and its targets. There is a high level of complementarity between the SDG 4 agenda and the OECD's education policy tools, instruments, evidence and dialogue platforms. The OECD is working with the UIS, the SDG 4 Steering Committee and the technical working groups that have been put in place to help build a comprehensive data system for global reporting, agree on the data sources and formulae used for reporting on the SDG 4 global indicators, and on selected thematic indicators for OECD and partner countries.

The theme of vocational education and training in *Education at a Glance 2023*

Every edition of *Education at a Glance* focuses on a specific theme. As the selected theme for this year's publication, vocational education and training (VET) is at the centre of *Education at a Glance 2023*. Table A summarises the indicators and chapters that contribute to the analysis of VET in this year's *Education at a Glance*.

Table A. Indicators relating to vocational education and training in *Education at a Glance 2023*

Chapter	Indicator number	Indicator
Chapter A: The output of educational institutions and the impact of learning	A1	To what level have adults studied?
	A2	Transition from education to work: Where are today's youth?
	A3	How does educational attainment affect participation in the labour market?
	A4	What are the earnings advantages from education?
	A6	How are social outcomes related to education?
	A7	To what extent do adults participate equally in education and learning?
Chapter B: Access to education, participation and progression	B1	Who participates in education?
	B3	Who completes upper secondary education?
Chapter C: Financial resources invested in education	C1	How much is spent per student on educational institutions?
	C2	What proportion of national wealth is spent on educational institutions?

Chapter	Indicator number	Indicator
Chapter D: Teachers, the learning environment and the organisation of schools	C3	How much public and private investment in educational institutions is there?
	C4	What is the total public spending on education?
	D1	How much time do students spend in the classroom?
	D3	How much are teachers and school heads paid?
	D7	What is the profile of teaching staff at upper secondary level and what is the student-staff ratio?

Statistical coverage

Although a lack of data still limits the scope of the indicators in many countries, the coverage extends, in principle, to the entire national education system (within the national territory), regardless of who owns or sponsors the institutions concerned and regardless of how education is delivered. With one exception (described below), all types of students and all age groups are included: children (including students with special needs), adults, nationals, foreigners and students in distance learning, in special education programmes or in education programmes organised by ministries other than the ministry of education, provided that the main aim of the programme is to broaden or deepen an individual's knowledge. Vocational and technical training in the workplace is not included in the basic education expenditure and enrolment data, with the exception of combined school- and work-based programmes that are explicitly deemed to be part of the education system.

Educational activities classified as “adult” or “non-regular” are covered, provided that the activities involve the same or similar content as “regular” education studies, or that the programmes of which they are a part lead to qualifications similar to those awarded in regular education programmes. Courses for adults that are primarily for general interest, personal enrichment, leisure or recreation are excluded.

More information on the coverage of the indicators presented in *Education at a Glance* can be found in the *OECD Handbook for Internationally Comparable Statistics on Education 2018* (OECD, 2018^[1]).

Comparability over time

The indicators in *Education at a Glance* are the result of a continuous process of methodological improvement aimed at improving the robustness and international comparability of the indicators. As a result, when analysing indicators over time, it is strongly advised to do so within the most recent edition only, rather than comparing data across different editions. All comparisons over time presented in this report and on the *Education at a Glance Database* (<http://stats.oecd.org>) are based on annual revisions of historical data and the methodological improvements which have been implemented in this edition.

Country coverage

This publication features data on education from all OECD countries and Brazil, a partner country that participates in the INES programme, as well as other G20 and OECD accession countries that are not INES members (Argentina, Bulgaria, Croatia, the People's Republic of China, India, Indonesia, Peru, Romania, Saudi Arabia and South Africa). Data sources for the non-INES participating countries come from the regular INES data collections or from other international or national sources.

In some instances, and where relevant, a country may be represented through its subnational entities or specific regions.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Note on subnational regions

When interpreting the results on subnational entities, readers should take into account their population as well as their geographical size. For example, in Canada, the population of Nunavut was 39 403 in 2021 and the territory covers 1.9 million

square kilometres, while the population of the province of Ontario is 14.8 million and the territory covers 909 000 square kilometres (OECD, 2021^[2]). Large countries tend to be more diverse than smaller ones. Moreover, the measured subnational variation is influenced by the definition of subnational entities. The smaller the subnational entities, the larger the measured variation. For example, for a country that has defined two levels of subnational regions (e.g. states and districts), the measured subnational variation for the smaller subnational entities will be larger than for the larger subnational entities. The analyses presented in *Education at a Glance* are based on large regions (OECD TL2 level), representing the first administrative tier of subnational government.

Note on terminology: “partner countries” and “other participants”

Education at a Glance reports data on non-OECD countries. In particular, data on Brazil, which is a member of the Indicators of Educational System (INES) programme, are reported throughout the publication. Data on other G20 countries are reported when available. These countries are referred to as “partner countries”.

In some instances, data on some subnational entities, such as England (United Kingdom), are included in country-level data. In line with the agreed upon OECD terminology, these subnational entities are referred to as “other participants” throughout the publication. The Flemish Community of Belgium and the French Community of Belgium are abbreviated in the tables and figures as “Flemish Comm. (Belgium)” and “French Comm. (Belgium)”.

Calculation of international means

The main purpose of *Education at a Glance* is to provide an authoritative compilation of key international comparisons of education statistics. While overall values are given for countries in these comparisons, readers should not assume that countries themselves are homogeneous. The country averages include significant variations among subnational jurisdictions, much as the OECD average encompasses a variety of national experiences.

For many indicators, an OECD average is presented; for some, an OECD total is shown. The OECD average is calculated as the unweighted mean of the data values of all OECD countries for which data are available or can be estimated. The OECD average therefore refers to an average of data values at the level of the national systems and can be used to answer the question of how an indicator value for a given country compares with the value for a typical or average country. It does not take into account the absolute size of the education system in each country.

If data from subnational entities are reported for some countries in an indicator, the subnational data are included in the calculation of the OECD average. If data from only one subnational region of a country are available, the data point will be used in the calculation of the OECD average as if the subnational region represents the entire country. If data for more than one subnational region from a country are reported in an indicator, the unweighted average of all subnational regions from the country is calculated. This unweighted average is then treated as the corresponding country value for the calculation of the OECD average.

The OECD total is calculated as the weighted mean of the data values of all OECD countries for which data are available or can be estimated. It reflects the value for a given indicator when OECD countries are considered as a whole. This approach is taken for the purpose of comparing, for example, expenditure charts for individual countries with those of all of the OECD countries for which valid data are available, considered as a single entity.

For tables using trend series, the OECD average is calculated for countries providing data for all reference years used. This allows the OECD average to be compared over time with no distortion due to the exclusion of some countries in the different years.

For many indicators, an EU25 average is also presented. It is calculated as the unweighted mean of the data values of the 25 countries that are members or accession countries of both the European Union and the OECD for which data are available or can be estimated. The 25 countries are Austria, Belgium, Bulgaria, Croatia, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Poland, Portugal, Romania, the Slovak Republic, Slovenia, Spain and Sweden.

The EU25 total is calculated as the weighted mean of the data values of all OECD-EU countries for which data are available or can be estimated. It reflects the value for a given indicator when the OECD-EU area is considered as a single entity.

For some indicators, a G20 average is presented. The G20 average is calculated as the unweighted mean of the data values of all G20 countries for which data are available or can be estimated (Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Korea, Mexico, the Russian Federation, Saudi Arabia, South Africa, the Republic of Türkiye, the United Kingdom and the United States; the European Union is the 20th member of the G20 but is not included in the calculation). The G20 average is not computed if data for both China and India are not available.

OECD, EU25 and G20 averages and totals can be significantly affected by missing data. In the case of some countries, data may not be available for specific indicators, or specific categories may not apply. Therefore, readers should keep in mind that the term “OECD/EU25/G20 average” refers to the OECD, EU25 or G20 countries included in the respective comparisons. OECD, EU25 and G20 averages are not calculated if more than 40% of countries have missing information or have information included in other columns. In this case, a regular average is presented, which corresponds to the arithmetic mean of the estimates included in the table or figure.

Classification of levels of education

The classification of levels of education is based on the International Standard Classification of Education (ISCED), an instrument for compiling statistics on education internationally. ISCED 2011 was formally adopted in November 2011 and is the basis of the levels presented in this publication.

Table B lists the ISCED 2011 levels used in *Education at a Glance 2023* (OECD/Eurostat/UNESCO Institute for Statistics, 2015^[3]).

Table B. Education levels under the ISCED 2011 classification

Terms used in this publication	ISCED classification
Early childhood education Refers to early childhood programmes that have an intentional education component and aim to develop cognitive, physical and socio-emotional skills necessary for participation in school and society. Programmes at this level are often differentiated by age.	ISCED 0 (sub-categories: 01 for early childhood educational development and 02 for pre-primary education)
Primary education Designed to provide a sound basic education in reading, writing and mathematics and a basic understanding of some other subjects. Entry age: between 5 and 7. Typical duration: six years.	ISCED 1
Lower secondary education Completes provision of basic education, usually in a more subject-oriented way with more specialist teachers. Programmes may differ by orientation, general or vocational, though this is less common than at upper secondary level. Entry follows completion of primary education and typical duration is three years. In some countries, the end of this level marks the end of compulsory education.	ISCED 2
Upper secondary education Stronger specialisation than at lower secondary level. Programmes offered are differentiated by orientation: general or vocational. Typical duration is three years.	ISCED 3
Post-secondary non-tertiary education Serves to broaden rather than deepen the knowledge, skills and competencies gained in upper secondary level. Programmes may be designed to increase options for participants in the labour market, for further studies at tertiary level or both. Programmes at this level are usually vocationally oriented.	ISCED 4
Short-cycle tertiary education Often designed to provide participants with professional knowledge, skills and competencies. Typically, they are practically based, occupation-specific and prepare students to enter the labour market directly. They may also provide a pathway to other tertiary education programmes (ISCED levels 6 or 7). The minimum duration is two years.	ISCED 5
Bachelor's or equivalent level Designed to provide participants with intermediate academic and/or professional knowledge, skills and competencies, leading to a first degree or equivalent qualification. Typical duration: three to four years full-time study. This level is referred to as “bachelor's” in the publication.	ISCED 6
Master's or equivalent level Stronger specialisation and more complex content than bachelor's level. Designed to provide participants with advanced academic and/or professional knowledge. May have a substantial research component.	ISCED 7

Terms used in this publication	ISCED classification
Programmes of at least five years' duration preparing for a long-first degree/qualification are included at this level if they are equivalent to a master's level programme in terms of their complexity and content. This level is referred to as "master's" in the publication.	
Doctoral or equivalent level Designed to lead to an advanced research qualification. Programmes at this level are devoted to advanced study and original research, and exist in both academic and professional fields. This level is referred to as "doctoral" in the publication.	ISCED 8

In some indicators, intermediate programmes are also used. These correspond to recognised qualifications from ISCED 2011 level programmes which are not considered as sufficient for ISCED 2011 completion and are classified at a lower ISCED 2011 level.

Fields of education and training

Within ISCED, programmes and related qualifications can be classified by field of education and training as well as by level. Following the adoption of ISCED 2011, a separate review and global consultation process took place on the ISCED fields of education. The ISCED fields were revised, and the UNESCO General Conference adopted the ISCED 2013 Fields of Education and Training classification (ISCED-F 2013) (UNESCO Institute for Statistics, 2014^[4]) in November 2013 at its 37th session. The broad ISCED-F fields considered in this publication are: education; arts and humanities; social sciences, journalism and information; business, administration and law; natural sciences, mathematics and statistics; information and communication technologies; engineering, manufacturing and construction; and health and welfare. Throughout this publication, the term "field of study" is used to refer to the different fields of this classification. The term STEM (science, technology, engineering and mathematics) refers to the aggregation of the broad fields of natural sciences, mathematics and statistics; information and communication technologies; and engineering, manufacturing and construction.

Standard error (S.E.)

Some of the statistical estimates presented in this report are based on samples of adults, rather than values that could be calculated if every person in the target population in every country had answered every question. Therefore, each estimate has a degree of uncertainty associated with sampling and measurement error, which can be expressed as a standard error. The use of confidence intervals is a way to make inferences about the population means and proportions in a manner that reflects the uncertainty associated with the sample estimates. In this report, confidence intervals are stated at a 95% level. In other words, the result for the corresponding population would lie within the confidence interval in 95 out of 100 replications of the measurement on different samples drawn from the same population.

In tables showing standard errors, the column with the heading "%" indicates the average percentage, and the column with the heading "S.E." indicates the standard error. Given the survey method, there is a sampling uncertainty in the percentages (%) of twice the standard error (S.E.). For example, for the values % = 10 and S.E. = 2.6, 10% has a 95% confidence interval of approximately twice (1.96) the standard error of 2.6. Thus, the true percentage would probably (error risk of 5%) be somewhere between 5% and 15% ("confidence interval"). The confidence interval is calculated as: $\% \pm 1.96 * S.E.$, i.e. for the previous example, $10\% - 1.96 * 2.6 = 5\%$ and $10\% + 1.96 * 2.6 = 15\%$.

Symbols for missing data and abbreviations

These symbols and abbreviations are used in the tables and figures:

- a Data are not applicable because the category does not apply.
- b There is a break in the series.
- c There are too few observations to provide reliable estimates.
- d Includes data from another category.
- m Data are not available – either missing or the indicator could not be computed due to low respondent numbers.

- q Data have been withdrawn at the request of the country concerned.
- r Values are below a certain reliability threshold and should be interpreted with caution.
- x Data are included in another category or column of the table (e.g. x(2) means that data are included in Column 2 of the table).

The statistical software used in the computation of indicators in this publication may result in slightly different values past the fourth significant digit after the decimal point when compared to national statistics.

Further resources

The website www.oecd.org/education/education-at-a-glance provides information on the methods used to calculate the indicators, on the interpretation of the indicators in the respective national contexts, and on the data sources involved. It also provides access to the data underlying the indicators and to a comprehensive glossary for technical terms used in this publication.

This web publication contains interactive features: Hyperlinked sections allow the reader to access data of interest quickly. The majority of charts displayed may be customised. Data series may be removed or added by clicking on them and the data point value appears when hovering over a data series with a mouse. Some charts display a “Compare” button, with additional customisation opportunities. Readers may change the display of an indicator, select countries to compare, and analyse additional data breakdowns.

All post-production changes to this publication are listed at: <https://www.oecd.org/about/publishing/corrigenda.htm> (corrections).

Education at a Glance uses the OECD’s StatLinks service. A URL below each table and figure leads to a corresponding Excel file containing the underlying data for the indicator. These URLs are stable and will not change. In addition, readers of the *Education at a Glance* e-book will be able to click directly on these links and the workbook will open in a separate window.

The *Education at a Glance Database* on OECD.Stat (<http://stats.oecd.org>) provides the raw data and indicators presented in *Education at a Glance*, as well as the metadata that provide context and explanations for countries’ data. The *Education at a Glance Database* allows users to break down data in more ways than is possible in this publication in order to conduct their own analyses of education systems in participating countries. It is also updated at regular intervals. The *Education at a Glance Database* can be accessed from the OECD.Stat site under the heading “Education and Training”.

Layout of tables

In all tables, the numbers in parentheses at the top of the columns are used for reference. When a consecutive number does not appear, that column is available online through the StatLink at the bottom of the table.

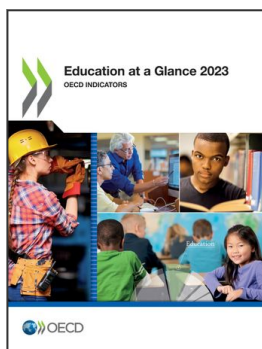
Abbreviations used in this report

AES	Adult Education Survey
ECEC	Early childhood education and care
EEA	European Economic Area
ESS	European Social Survey
GDP	Gross domestic product
ICT	Information and communication technologies
ISCED	International Standard Classification of Education
LFD	Master’s long-first degree

NEET	Neither employed nor in education or training
NPV	Net present value
PIAAC	Survey of Adult Skills
PISA	Programme for International Student Assessment
PPP	Purchasing power parity
R&D	Research and development
S.E.	Standard error
STEM	Science, technology, engineering and mathematics
TALIS	Teaching and Learning International Survey
UIS	UNESCO Institute of Statistics
UOE	Refers to the data collection managed by the three organisations, UNESCO, OECD, Eurostat
VET	Vocational education and training

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